

Monthly Progress Report

June 15, 2019

To: Eric Winiecki, U.S. Environmental Protection Agency, Region 10

From: Mark Larsen and Nicole LaFranchise, Anchor QEA, LLC

cc: Rene Fuentes and Jennifer MacDonald, U.S. Environmental Protection Agency, Region 10
Henry Bosma, Liberty Dairy, LLC
Dan DeRuyter, George DeRuyter & Son Dairy, LLC
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**Re: Docket No. SDWA-10-2013-0080; Yakima Valley Dairies
May 2019 Monthly Progress Report**

This progress report describes activities performed in compliance with Docket No. SDWA-10-2013-0080 between May 11 and June 10, 2019. This progress report is submitted on behalf of the Yakima Valley Dairies (Dairies), including the following: 1) Cow Palace, LLC; 2) George DeRuyter & Son Dairy, LLC; D&A Dairy, LLC (also known as D and A Dairy, LLC); and George & Margaret, LLC; and 3) Liberty Dairy, LLC, and its associated dairy facility H&S Bosma Dairy.

1. Major Accomplishments and Issues

The current status of the lagoon lining and abandonment projects is as follows:

- **Liberty/H&S Bosma Dairies**
 - Lagoon abandonments at the H&S Bosma Dairy are nearly complete. We anticipate providing the completion report for your review by July 1st. The progress of work to date has been described in progress update letters and in our weekly teleconferences as follows:
 - Lagoon 20: Soil removal from the bottom and two sides of Lagoon 20 was completed in a single phase of excavation. The remaining two sides were completed following 1-foot and 3-feet of additional excavation on the east and west sides, respectively. Final sampling data were provided in our letter dated May 31, 2019.
 - Lagoon 19: Soil removal from Lagoon 19 was completed in a single phase of excavation as described in our letter dated May 31, 2019.
 - Lagoon 9: Soil removal from Lagoon 9 was completed in a single phase of excavation as described in our letter dated June 7, 2019.

- Lagoon 8: Soil were excavated from Lagoon 8, and we are awaiting the results of compliance monitoring samples taken on June 11th.
 - EPA comments on the Lagoon No. 6 100% Basis of Design Report (EPA Letter 196) were received. As discussed with you, the proposed deepening of the lagoon will be removed from the design, resolving the need for additional deeper soil borings at this lagoon. The revised Basis of Design Report will be submitted to EPA by July 9, 2019.
 - EPA comments on the previously approved Lagoon No. 10 Basis of Design Report (EPA Letter 197) were received. The additional appendix to the Basis of Design Report will be submitted to EPA by June 25, 2019.
 - We are coordinating planned summer/fall construction with the Dairy and the proposed contractors. Currently, Anchor QEA, LLC, anticipates that lining activities for both Lagoon No. 6 and Consolidated Lagoon No. 10 will be conducted by the same contractors (Ag Pro Construction, Inc., and Northwest Linings) that conducted lining projects at Liberty Dairy during previous years. If this changes, Anchor QEA will provide the required notifications to EPA.
- **Cow Palace**
 - The 90% Basis of Design Report and associated documents related to the Safety Debris Catch Basin were submitted for EPA review on May 15, 2019. EPA comments on the 90% lagoon lining documents for the Safety Debris Catch Basin (EPA Letter 198) were received. The 100% Basis of Design Report and associated lagoon lining documents will be submitted to EPA by July 2, 2019 consistent with those comments.
 - Anchor QEA has been coordinating with the Washington State Department of Ecology (Ecology) Dam Safety Office regarding Cow Palace Lagoon No. 1. Anchor QEA is currently developing modeling and design review materials for submittal to Ecology in late June 2019. No significant issues or concerns have arisen during completion of this work.
 - Currently, Anchor QEA anticipates that lining activities for both Lagoon No. 1 and the Safety Debris Catch Basin will be conducted by the same contractors (Hilmes Construction, Inc., and Northwest Linings) that conducted lining projects at Cow Palace during previous years. If this changes, Anchor QEA will provide the required notifications to EPA.
- **George DeRuyter & Son/D&A Dairies**
 - Progress on the digester and nitrification/denitrification (NDN) system is described in Section 3. As described in that section, Lagoon 1 has been emptied in preparation for installation and startup of the in-pond equipment. Biogas production and dissolved air flotation (DAF) production remain good.

Agrimanagement, Inc., completed 2019 pre-plant soil sampling activities in accordance with the requirements of the Administrative Order on Consent on June 11, 2019, initiating the 60-day period

to submit the 2019 Pre-Plant Dairy Application Field Report Memorandum for the Dairies to EPA by August 10, 2019.

Second quarter groundwater monitoring field activities were completed on June 5th. Consistent with the AOC-defined schedule, the groundwater monitoring report will be submitted to EPA by August 5th, 2019.

2. Other Actions Taken to Comply with the Administrative Order on Consent

A number of draft deliverables have been submitted to EPA and are awaiting approval. Please let Anchor QEA know if EPA requires further information regarding these submittals. These deliverables are listed in Table 1.

3. George DeRuyter & Sons Dairy Nitrification/Denitrification System Update

This section summarizes the progress of the digester and DAF upgrades and the NDN system installation:

- Biogas production and operation of the dissolved air flotation (DAF) unit have both been good, following modifications to the unit's throughput to accommodate the undersized digester heater. A replacement heater has been ordered and is planned for installation in August. At that time the Dairy anticipates being able to increase digester/DAF throughput from about 80 percent to 100 percent of the Dairy's manure production.
- In the mean time the Dairy has staged the in-pond equipment necessary for NDN operation. Manure liquids and solids have been fully removed from GDS Lagoon 1 in preparation for equipment installation. The lagoon sides and bottom were found to be in excellent condition as shown in the photograph below.
- The NDN equipment will be installed within Lagoon 1 and it will be re-filled with treated effluent from the DAF.
- Anchor QEA and Regenix are taking baseline manure samples from the DAF effluent to characterize the influent to the NDN. This will continue along with NDN effluent samples once the NDN unit is operational.



Photograph 1: View of GDS Lagoon 1 emptied of liquid and solid manure in preparation for installation of NDN in-pond equipment. The lagoon bottom and sides were found to be in excellent condition.

4. Work in Progress

Table 1 outlines the updated deliverable schedule. Please note that completed deliverables referenced in Table 1 have been submitted to EPA but require final review and approval.

Table 1
Deliverable Schedule

| Deliverable Name or Event | Date of Most Recent EPA Comment Letter (If Any) | Current Due Date (If Any) Established by AOC/Date Indicated in EPA Comment Letter | Anticipated Start/End Date | On Track to Meet Due Date/Start or End Date? (Yes/No; If No, Explain in Item 5) |
|---|---|---|----------------------------|---|
| GROUNDWATER MONITORING (III.E) | | | | |
| First Quarter 2017 Quarterly Groundwater Monitoring Data Report (Revised) | 7/25/2017 (EPA Letter 154) | 8/22/2017 (Revised per EPA Letter 154) | Complete | Submitted to EPA on 8/18/2017 (Cover: August 22, 2017) |
| Second Quarter 2017 Quarterly Groundwater Monitoring Data Report (Draft) | — | — | Complete | Submitted to EPA on 08/07/2017 |
| Third Quarter 2017 Quarterly Groundwater Monitoring Data Report (Draft) | — | — | Complete | Submitted to EPA on 11/27/2017 |

| Deliverable Name or Event | Date of Most Recent EPA Comment Letter (If Any) | Current Due Date (If Any) Established by AOC/Date Indicated in EPA Comment Letter | Anticipated Start/End Date | On Track to Meet Due Date/Start or End Date? (Yes/No; If No, Explain in Item 5) |
|--|--|--|-----------------------------------|--|
| Fourth Quarter 2017 Quarterly Groundwater Monitoring Data Report (Draft) | — | — | Complete | Submitted to EPA on 2/2/2018 |
| Final Groundwater Monitoring QAPP | 2/28/2018 (Conditional Approval, EPA Letter 164) | 4/1/2018 | Complete | QAPP revised and resubmitted to EPA on 3/8/2018 |
| First Quarter 2018 Quarterly Groundwater Monitoring Data Report (Draft) | — | 5/19/2018 (60 days following last sample collection date) | Complete | Submitted to EPA on 5/21/2018 |
| Second Quarter 2018 Quarterly Groundwater Monitoring Data Report (Draft) | — | 8/10/2018 (60 days following last sample collection date) | Complete | Submitted to EPA on 8/10/2018 |
| Third Quarter 2018 Quarterly Groundwater Monitoring Data Report (Draft) | — | 11/9/2018 (60 days following last sample collection date) | Complete | Submitted to EPA on 11/9/2018 |
| Fourth Quarter 2018 Quarterly Groundwater Monitoring Data Report (Draft) | — | 2/11/2019 (60 days following last sample collection date) | Complete | Submitted to EPA on 2/11/2019 |
| First Quarter 2019 Quarterly Groundwater Monitoring Data Report (Draft) | — | 5/20/2019 (60 days following last sample collection date) | Complete | Submitted to EPA on 5/21/2019 |
| Second Quarter 2019 Quarterly Groundwater Monitoring Data Report (Draft) | — | 8/5/2019 (60 days following last sample collection date) | 8/5/2019 | Yes |
| IMMEDIATE SOURCE CONTROL ACTIONS (III.F) | | | | |
| 2017 Post-Harvest Dairy Application Field Reports | — | 12/22/2017 (60 days from last sample collected) | Complete | Submitted to EPA on 12/19/2017 |
| 2018 Pre-Plant Dairy Application Field Reports | — | 8/3/2018 (60 days from last sample collected) | Complete | Submitted to EPA on 8/3/2018 |
| 2018 Post-Harvest Dairy Application Field Report Memorandum | — | 1/2/2019 (60 days from last sample collected) | Complete | Submitted to EPA on 1/2/2019 |

| Deliverable Name or Event | Date of Most Recent EPA Comment Letter (If Any) | Current Due Date (If Any) Established by AOC/Date Indicated in EPA Comment Letter | Anticipated Start/End Date | On Track to Meet Due Date/Start or End Date? (Yes/No; If No, Explain in Item 5) |
|--|--|--|-----------------------------------|--|
| 2019 Pre-Plant Dairy Application Field Report Memorandum | — | 8/10/2019 (60 days from last sample collected) | 8/10/2019 | Yes |
| D&A Consolidated Lagoon No. 3 Completion Report | — | 2/1/2018 | Complete | Submitted to EPA on 2/1/2018 |
| Liberty Dairy Consolidated Lagoon No. 15 Completion Report | — | 2/1/2018 | Complete | Submitted to EPA on 2/1/2018 |
| Liberty Dairy Red Water Pond BODR – 100% Design Submittal and OMMP | 10/22/2018 (EPA Letter 185) | 11/19/2018 | Complete | Submitted to EPA on 11/19/2018 |
| George DeRuyter & Son Dairy As-Built Report for Stormwater Catch Basin | 9/18/2019 (EPA Letter 182) | 2/1/2019 | Complete | Submitted to EPA on 1/31/2019 |
| Cow Palace Completion Report for Northeast Catch Basin Abandonment | 12/27/2018 (EPA Letter 188) | 2/15/2019 | Complete | Submitted to EPA on 1/31/2019 |
| Liberty Dairy As-Built Report for Lining of Red Water Pond | 10/22/2018 (EPA Letter 185) | 2/1/2019 | Complete | Submitted to EPA on 1/31/2019 |
| H&S Bosma Dairy Lagoon No. 6 Basin of Design Report 100% Design Submittal | 5/14/2019 (EPA Letter 196) | 7/9/2019 | 7/9/2019 | Yes |
| H&S Bosma Dairy Completion Report for Lagoon Nos. 8, 9, 19 and 20 Abandonments | 12/27/2018 (EPA Letter 188) | 7/1/2019 (Date is from extension request submitted 5/31/2019) | 7/5/2019 | Yes |
| Cow Palace Safety Debris Catch Basin 100% Basis of Design Report | 6/4/2019 (EPA Letter 198) | 7/2/2019 | 7/2/2019 | Yes |
| H&S Bosma Dairy Modified Lagoon No. 10 BODR – 100% Design Submittal | 5/28/2019 (EPA Letter 197) | 6/25/2019 | 6/25/2019 | Yes |
| Cow Palace Lagoon No. 1 As-Built Report | 3/18/2019 (EPA Letter 189) | 2/1/2020 | 2/1/2020 | Yes |
| Cow Palace Safety Debris Catch Basin As-Built Report | 3/18/2019 (EPA Letter 189) | 2/1/2020 | 2/1/2020 | Yes |
| H&S Bosma Lagoon Nos. 10, 11, and 13 Lining As-Built Report | 3/20/2019 (EPA Letter 190) | 12/1/2020 | 12/1/2020 | Yes |

| Deliverable Name or Event | Date of Most Recent EPA Comment Letter (If Any) | Current Due Date (If Any) Established by AOC/Date Indicated in EPA Comment Letter | Anticipated Start/End Date | On Track to Meet Due Date/Start or End Date? (Yes/No; If No, Explain in Item 5) |
|---|--|--|-----------------------------------|--|
| H&S Bosma Lagoon No. 6 Lining As-Built Report | 3/20/2019 (EPA Letter 190) | 12/31/2020 | 12/31/2020 | Yes |
| REPORTING (III.K) | | | | |
| Monthly Progress Report | 10/18/2018 (EPA Letter 184) | 15th of each month (AOC) | 15th of each month | Yes |
| 2013 Annual Report (Revised) | 12/30/2015 (EPA Letter 95) | 2/27/2016 (EPA Letters 104, 116, 121, and 128) | Complete | Submitted to EPA on 11/18/2016 |
| 2014 Annual Report (Revised) | 2/2/2016 (EPA Letter 101) | 4/1/2016 (EPA Letters 109 and 128) | Complete | Submitted to EPA on 11/18/2016 |
| 2015 Annual Report (Revised) | 1/3/2017 (EPA Letter 133) | 1/31/2017 (EPA Letter 133) | Complete | Submitted to EPA on 1/31/2017 |
| 2016 Annual Report | — | 3/1/2017 | Complete | Submitted to EPA on 3/1/2017 |
| 2017 Annual Report (Revised) | 3/21/2018 (EPA Letter 166) | 4/18/2018 | Complete | Submitted to EPA on 4/17/2018 |
| 2018 Annual Report | — | 3/1/2019 | Complete | Submitted to EPA on 3/1/2019 |

Notes:

—: not applicable

AOC: Administrative Order on Consent

BODR: Basis of Design Report

OMMP: Operations, Maintenance, and Monitoring Plan

QAPP: Quality Assurance Project Plan

5. Encountered Issues and Anticipated Actions

The adjustments to estimated completion dates for the lagoon abandonments at H&S Bosma Dairy and for the activation of the NDN treatment system at George DeRuyter & Son Dairy have been documented in status reports and extension requests submitted to EPA.

Any additional changes to anticipated construction completion dates will be discussed with EPA as part of ongoing construction meetings.

6. List of Completed Administrative Order on Consent Work

Table 2 lists Administrative Order on Consent work that has been completed and approved by EPA.

Table 2
Work Product Status Update

| Work Product | Submittal Date (Report Cover Date) | Status |
|---|---------------------------------------|-----------------------|
| PROVISION OF WATER (III.D) | | |
| Residential Well Sampling QAPP (III.D.2) | 4/26/2013 | APPROVED |
| Residential Well Sampling Report | 12/20/2013 | APPROVED |
| GROUNDWATER MONITORING (III.E) | | |
| Groundwater Monitoring Well Installation Report (III.E.2) | 10/06/2014 | APPROVED |
| Data Usability Report (III.A.3.e.(1)) ¹ | | |
| Third Quarter 2013 | 10/14/2015 | APPROVED |
| Fourth Quarter 2013 | 10/14/2015 | APPROVED |
| First Quarter 2014 | 10/14/2015 | APPROVED |
| Second Quarter 2014 | 10/14/2015 | APPROVED |
| Third Quarter 2014 | 10/14/2015 | APPROVED |
| Fourth Quarter 2014 | 5/21/2015 | APPROVED |
| First Quarter 2015 | 5/21/2015 | APPROVED |
| Second Quarter 2015 | 10/14/2015 | APPROVED |
| Quarterly Groundwater Monitoring Data Report (III.E.3) | | |
| Third Quarter 2013 | 1/14/2016 | APPROVED |
| Fourth Quarter 2013 | 1/14/2016 | APPROVED |
| First Quarter 2014 | 1/14/2016 | APPROVED |
| Second Quarter 2014 | 9/4/2015 | APPROVED |
| Third Quarter 2014 | 1/14/2016 | APPROVED |
| Fourth Quarter 2014 | 1/14/2016 | APPROVED |
| First Quarter 2015 | 1/14/2016 | APPROVED |
| Second Quarter 2015 | 1/14/2016 | APPROVED |
| Third Quarter 2015 | 12/14/2015 | APPROVED |
| Fourth Quarter 2015 | 3/31/2016 | APPROVED |
| First Quarter 2016 | 5/31/2016 | APPROVED |
| Second Quarter 2016 | 9/6/2016 | APPROVED |
| Third Quarter 2016 | 3/20/2017 (Cover: March 2017) | APPROVED 4/3/2017 |
| QAPP Addendum No. 1 | 11/10/2016 (Cover: November 2016) | APPROVED 1/13/2017 |
| Fourth Quarter 2016 | 5/1/2017 (Cover: May 1, 2017) | APPROVED 5/26/2017 |

| Work Product | Submittal Date (Report Cover Date) | Status |
|---|--|---|
| IMMEDIATE SOURCE CONTROL ACTIONS (III.F) | | |
| Dairy Facility Application Field Management Plan(s) (III.F.1) | 11/18/2013 | APPROVED; revised DFAFMPs submitted to EPA on 5/31/2016; updated DFAFMPs submitted to EPA on 5/15/2018 |
| 2013 Post-Harvest Dairy Application Field Reports | 8/29/2015 | APPROVED |
| 2014 Pre-Plant Dairy Application Field Reports | 8/13/2015 | APPROVED |
| 2014 Post-Harvest Dairy Application Field Reports | 8/14/2015 | APPROVED |
| 2015 Pre-Plant Dairy Application Field Reports | 3/27/2017 | APPROVED |
| 2015 Post-Harvest Dairy Application Field Reports | 3/27/2017 | APPROVED |
| 2016 Pre-Plant Dairy Application Field Reports | 3/27/2017 | APPROVED |
| 2016 Post-Harvest Dairy Application Field Reports | 1/3/2017 (Cover: January 3, 2017) | APPROVED 3/27/2017 |
| 2017 Pre-Plant Dairy Application Field Reports | 7/31/2017 (Cover: July 2017) | APPROVED 8/1/2017 |
| Irrigation Water Management Plan(s) (III.F.2) | 8/15/2014 | APPROVED |
| Lagoon Review Report(s) (III.F.6) | 8/22/2013 | APPROVED |
| Lagoon Evaluation Plans (III.F.6) | 2/6/2015 | NOT REQUIRED; Dairies elected to line lagoons |
| Cow Palace Lagoon Work Plan (III.F.6) | 3/11/2016 | APPROVED |
| Cow Palace Lagoon QAPP (III.F.6) | 3/11/2016 | APPROVED |
| Cow Palace NW Catch Basin 100% Design (III.F.6) | 6/20/2016 | APPROVED |
| Liberty/H&S Bosma Dairies Modified Lagoon Work Plan (III.F.6) | 11/10/2016 (Cover: November 2016) | APPROVED 1/6/2017 |
| George DeRuyter & Son/D&A Dairies Lagoon Work Plan (III.F.6) | 11/10/2016 (Cover: November 2016) | APPROVED 1/6/2017 |
| Final BODR, Liberty Dairy Consolidated Lagoon No. 15, 100% Design | 7/20/2017 (Cover: July 19, 2017) 08/17/2017 (Mods cover: August 11, 2017) | APPROVED WITH MODIFICATIONS 7/25/2017 |
| Final BODR, D&A Dairy Consolidated Lagoon No. 3, 100% Design | 7/20/2017 (Cover: July 19, 2017) 08/17/2017 (Mods cover: August 11, 2017) | APPROVED WITH MODIFICATIONS 7/25/2017 |
| H&S Bosma Dairy Modified Lagoon No. 10 BODR – 100% Design Submittal and Abandonment Plan for Lagoon Nos. 8, 9, 19, and 20 | 8/29/2018 (Cover: August 29, 2018) | APPROVED 9/18/2018 |
| H&S Bosma Dairy Lagoon No. 10 OMMP | 8/29/2018 (Cover: August 29, 2018) | APPROVED 9/18/2018 |

| Work Product | Submittal Date (Report Cover Date) | Status |
|--|---|------------------------------------|
| George DeRuyter & Son Dairy Stormwater Catch Basin and D&A Dairy Lagoon Nos. 1 and 2 Modified BODR – 100% Design Submittal | 8/29/2018 (Cover: August 29, 2018) | APPROVED 9/18/2018 |
| Cow Palace Abandonment Plan for Northeast Catch Basin | 9/10/2018 (Cover: September 11, 2018) | APPROVED 9/12/2018 |
| Liberty/H&S Bosma Dairies Lagoon Pre-Design Data Collection QAPP (III.F.6) | 1/27/2017 (Cover: January 26, 2017) | APPROVED 2/2/2017 |
| George DeRuyter & Son/D&A Dairies Lagoon Pre-Design Data Collection QAPP (III.F.6) | 1/27/2017 (Cover: January 26, 2017) | APPROVED 2/2/2017 |
| George DeRuyter & Son Dairy Stormwater Catch Basin NDN QAPP | 10/30/2018 (Cover: October 2018) | APPROVED 3/21/2019 |
| REPORTING (III.K) | | |
| Monthly Progress Reports (III.K.1) | 15th of the following month | Current through the current month. |
| Health and Safety Plan | 9/13/2016 (Cover: September 2016) | Current version ² |

Notes:

1. Following the second quarter of 2015, Data Usability Reports are no longer required as separate deliverables.
2. This is the current version of the project Health and Safety Plan. EPA does not provide formal review and approval of the Health and Safety Plan, though it is provided for use. The Health and Safety Plan will be updated periodically if applicable to address additional work or field activities.

BODR: Basis of Design Report

DFAFMP: Dairy Facility Application Field Management

OMMP: Operations, Maintenance, and Monitoring Plan

QAPP: Quality Assurance Project Plan